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## 1976 MAIBEN LECTURE

### A REVIEW OF THE EVIDENCE FOR ABORIGINAL AGRICULTURE WITH SPECIAL REFERENCE TO THE NEBRASKA AREA

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Many of us, particularly in this bicentennial time, hear many references to pioneers, civilization, and farmers, often with such references directed in the Plains area to people who have inhabited the area for a period of less than two hundred years.

I'm sure that we are all aware that there were earlier Indian pioneers, at least ten thousand years ago. "Civilization" and "culture" are both somewhat vague terms, meaning different things to different people. There can be little doubt that the American Indian possessed the ability to adapt readily to the Plains environment, just as the later white settler had to adapt to survive. In historic times, such tribes as the Dakota Sioux and the Cheyenne, in moving west to the Plains, greatly changed their lifestyles.

The area that I would like to review in somewhat greater detail is that of agriculture, or more specifically horticulture. Every school child is aware that our ancestors received many of our present plant products from Indian sources. Such a list is long and diversified and ranges from tobacco to corn.

At the dawn of Nebraska's written history of the early 1800's, there are considerable data on the various tribes who came into contact with representatives of the U.S. government. Among these representatives were members of the Lewis and Clark expedition of 1804-1806, the Lieutenant Zebulon Pike party of 1806, and the Major Stephen H. Long expedition of 1819-1820. Some of this information relates to horticultural products and processes and is relatively well documented. Common to their references of native crops are maize, beans, pumpkins, and squash.

Although maize was important in the subsistence of all tribes, it held a very special significance to the Pawnee. Corn was their mother; it was important in their rituals and in their mythology, even more so than the buffalo. Two ears of corn went into the sacred bundles of the tribe and were renewed annually (Dorsey, 1904:20). Some of the most important ceremonies—including the sacrifice of a maiden to the Morning Star by the Skidi—were directed as much toward securing a bountiful corn crop as toward success on the bison hunt.

It may be appropriate to comment briefly on the methods used by the Pawnee and other historic tribes in gardening activities. The cultivated fields were small, seldom more than an acre. They were usually in the flood plain at the mouth of a ravine, where the soil was fertile with increased moisture. The field work was, for the most part, carried on by the women, with the men providing some guard service as needed. The corn was planted in hills, with the primary garden tool being a hoe, fashioned from a shoulder blade of a buffalo. I have found no references to artificial fertilizers. Historic records indicating irrigation are also lacking for the Nebraska area. There is evidence, however, of an irrigation system being developed by Pueblo tribes in a Scott County site of western Kansas, believed to date circa 1700 (Wedel, 1959:437-438). Such development, however, may be considered a result of direct influence from the Southwest. All Nebraska tribes, particularly those of a nomadic way of life, also depended rather heavily on wild plants.

The most intensive studies on the ethnobotany of Nebraska tribes were carried out by Melvin R. Gilmore (1868-1940), who made particular reference to the Omaha tribe (Gilmore, 1913:314-357). From 1911 to 1916, Gilmore served as a staff member of the Nebraska State Historical Society, with his field and research interests directed toward the Indians and their subsistence (Erickson, 1971). Much of Gilmore's discussion relates to the utilization of wild plants by the Omaha, but he does provide details on such cultivated plants as tobacco, corn, pumpkins, and melons.

Studies by George F. Will and George E. Hyde (*Corn Among the Indians of the Upper Missouri*, 1917, reprint 1964) provide information based, in part, on the work of Gilmore. The corn varieties collected from sources at that time are generally divided into flint dent and flour, with the latter being more common in the Nebraska area. The dent variety generally occurred over the southern area of the United States, while the flint was more common north of Nebraska. The studies also indicated that the Indians were aware that different varieties of corn could become mixed; care was taken in planting to prevent such action. The Mandan tribe, for example, is credited with the cultivation of some

twelve varieties, including both flint and flour corn. Sunflowers were usually planted in rows between the corn.

Native corn proved an important contribution to settlement in the Upper Missouri country. One of the earliest uses was by troops at Fort Atkinson, now in Washington County, Nebraska. General Henry Atkinson's fond hope was to make Fort Atkinson, with the exception of a "few hundred grown hogs and a moderate supply of beef cattle," wholly self sufficient after the year 1821. Some 512 acres of land were placed under cultivation. Private gardens, as well as regimental and company gardens, were laid out, and root cellars were dug to store the produce. After retreat, the officer of the day sent out patrols to protect the cabbages, beets, radishes, parsnips, carrots, and other vegetables. The crops occasionally required the labor of sixty to eighty soldiers. Among the supplies suggested for the post, prior to its establishment, was a supply of "Mandan Corn" which would be adaptable to the climate. Archeological excavations carried out at the site in 1956 revealed charred corn cobs up to four inches in length. The success of the experiment in farming west of the Missouri was confirmed by the corn harvest in 1822. Almost nineteen thousand bushels of corn were husked for the post, if we may rely on the reports. To house all of the grain reaped, it was necessary to construct a new barn. Additions were made to the hogs and cattle herds which were on feed. The best riflemen were posted as guards to protect the livestock from wolves. A civilian, Ashael Savery, was employed to superintend the care of the cattle and to manage a dairy, where butter and cheese were made.

The efficient operation of the fort as an agricultural-experimental farm served to hasten the downfall of such operations. Inspector George Croghan was less than complimentary following his inspection of 1822. He reported that the men devoted so much time to their agricultural pursuits that military training was entirely neglected. The post commander, Colonel Woolley, had earlier posted this notice: "Farming hereafter is to be subordinate to military instructions and habits and is not to be made an excuse for neglect of duties, strictly military." Mandan "squaw corn" of several varieties were utilized by the later white settlers eventually to end up as hog food. In some cases, the varieties of Indian corn were improved to provide corn for the marginal areas of the corn belt.

We have briefly reviewed the records for plant cultivation during the historic period for both Indians and whites. Present archeological evidence, however, would indicate that Indians occupied the Nebraska area for more than 10,000 years prior to the coming of the whites. Yet, the data for this period are more limited and are dependent largely on carbonized specimens recovered from archeological excavations.

Thus far, such remains in reference to cultivated crops coincide with pottery-making cultures dating after 1 A.D. and probably closer to 600 A.D. In Nebraska, the earliest

pottery groups have been generally assigned to the Woodland Culture. Their villages or camps were usually small, of a semi-permanent nature, and may represent family or clan groups numbering less than fifty people. Their habitation structures may have been comparable in design to the wigwam: a bark, mat, or hide-covered oval structure not to be confused with the later teepee. A limited number of storage pits, often less than 3 feet in depth, are usually found in the village sites. The later bison shoulder-blade hoe is lacking, and it seems likely that the digging stick or other such tools were of a perishable nature. One such site was excavated in 1941 by the Society in Platte County, Nebraska. From a trash-filled pit at the site came various charred wood fragments and six small charred seeds that were tentatively identified in the field as corn. These were submitted to the late George Will, who identified them as "an early flint or popcorn judging by the size of the kernels." The sample was also made available to Dr. Paul Mangelsdorf of the Botanical Museum, Harvard University, who did not have the benefit of the identification by Will. He commented, "I have examined these with interest and find that two of them are undoubtedly corn and furthermore, their size and shape is such to indicate they are not too different from the primitive popcorn from Bat Cave, [New Mexico] dated at about 1500 to 2000 B.C." This does not mean, of course, that this particular corn was grown at such an early date, but there is no doubt that it represents a relatively primitive type of corn (Kivett, 1952:57-58). This find has been documented in some detail since presently it seems to represent the earliest known occurrence of such remains for the Nebraska area and to fix the earliest Nebraska "Corn-husker" at the reasonable date of 600 A.D. It should, perhaps, be noted that whereas there was random evidence of post holes, they lacked the pattern for goal posts; and definite evidence for the game of football is lacking. The late Woodland Walker Gilmore Site of eastern Cass County has yielded remains of squash and gourd, but evidence for corn is lacking.

It should be noted that the early occupants of the Nebraska area were subject to adverse climatic conditions, particularly droughts. The archeological evidence would suggest that the native people may have been forced to relocate to more favorable areas during extreme conditions. Whether such droughts were totally responsible for the lack of continuity in cultural sequence cannot be determined. There is no doubt, however, that they were an important factor and seem to coincide, in the dendrochronology studies, with a change in culture (Champe, 1946).

Thus, following the Woodland period, which may have extended to 800 A.D., we have not identified groups living in this immediate area until about 1000 A.D. In the Nebraska-Kansas region, these include the Upper Republican and Nebraska Culture remains in the form of rectangular earthlodge village sites, suggesting an increased population. The remains from this period are commonly found near most of the stream valleys east of the 100th meridian and, less commonly, 200

miles or more farther west. Their period of occupancy may have lasted until 1400 A.D., and there is some evidence they were, in part, the ancestors of such historic tribes as the Pawnee. These groups, in addition to hunting and fishing, practiced a fairly intensive corn and bean horticulture. Storage pits increase in size, and agricultural tools become more varied. Such tools include the buffalo shoulder-blade hoe, as well as hoe blades fashioned from stone and shell. Their only domesticated animal was the dog.

Of particular interest in the crop inventory is the evidence of sunflowers as a cultivated crop, and there is some evidence to suggest that the sunflower may have rivaled corn as an important food source. Excavations carried out at the Medicine Creek Reservoir in Frontier County in 1948 yielded large quantities of charred sunflower seeds in the storage pits. Among the historic tribes, it is reported that sunflowers were the first to be planted in the spring, with several varieties being planted.

Whereas to date the earlier Woodland Culture sites have not yielded corn cobs, they have been recovered from sites of the Middle Ceramic or Upper Republican period. Such cobs are of the eight- and ten-rowed varieties up to three—rarely four—inches in length. It should be noted, however, that several varieties may be present, suggesting considerable advance from the earlier Woodland period.

Most Plains' Indian corn grown at the time of contact with Europeans is reported to have belonged to the Northern Flint race, a straight-eared, usually eight-rowed corn which had flint, flour, and probably sweet variants in a wide range of colors. Will and Hyde (1917:155, 306) describe and illustrate ten kinds of corn grown by the Pawnee. Excavations by the Nebraska State Historical Society at the Crow Creek site north of Chamberlain, South Dakota, have yielded charred seeds which have been recently identified by Hugh Cutler of the Missouri Botanical Gardens, St. Louis, Missouri. It is of interest to note that specimens were recovered from a habitation level of approximately 1000 A.D. and from a second of 1400 A.D. From the latter zone came popcorn of a fourteen-rowed form, while others of the same time period ran eight, ten, and twelve rows and seem to represent both Northern Flints and flour corns. The limited collection from the level of 1000 A.D. contained only remains of ten and twelve rows of grain, which have been compared to forms from the Southwest. The samples are small, and few valid conclusions are possible as to the origin of corn in the Nebraska and Central Plains area.

On the basis of the present evidence, it would appear that the cultivation of crops by native groups in Nebraska has extended over a period of at least a thousand years and perhaps considerably longer. Of the various cultivated crops, corn has been produced in the greatest variety and has provided the greatest assistance in the settlement of Nebraska and the Plains by white settlers.

